Ontario

ONTARIO CHRONIC WASTING DISEASE SURVEILLANCE AND RESPONSE PLAN

November 2005

EXECUTIVE SUMMARY

Chronic wasting disease (CWD) is a degenerative brain disease of deer and elk that is associated with prions and is related to other transmissible spongiform encephalopathy (TSE) diseases such as mad cow disease. CWD was first described in captive mule deer in Colorado in 1967. It was first detected in free-ranging deer in Colorado in 1981, although it is thought to have infected wild herds before then.

Wildlife agencies in CWD-susceptible areas across Canada and the U.S. have expanded their surveillance activities in an effort to document the presence or absence of the disease as it continues to spread across the United States and into western provinces. Ontario began testing free-ranging deer for CWD in 2002 and implemented a CWD surveillance program in the fall of 2003.

In the U.S. CWD has been found in mule deer, white-tailed deer and elk in captive facilities in Colorado, Kansas, Minnesota, Montana, Nebraska, New York, Oklahoma, South Dakota and Wisconsin. It has been confirmed in free-ranging mule and white-tailed deer and elk in Colorado, Illinois, Nebraska, New Mexico, New York, South Dakota, Utah, West Virginia, Wisconsin and Wyoming. Colorado has been testing for CWD in moose since 2002 and confirmed that one wild animal tested positive for the disease in September 2005.

In Canada, CWD was first recognized in captive mule deer in the Toronto Zoo in the mid-1970's (the symptoms were not confirmed as CWD until 1981 after the herd had died off). No other incidence of the disease occurred until it was confirmed in two wild mule deer in Saskatchewan in 2001. Since then it has persisted in Saskatchewan's free-ranging mule deer and white-tailed deer populations and has been confirmed in wild mule deer in Alberta and in captive deer and elk herds in Alberta and Saskatchewan. These occurrences and recent confirmation of CWD in captive and wild white-tailed deer in New York State have heightened concerns about the spread of the disease to Ontario.

There is no evidence that CWD is present in captive or free-ranging white-tailed deer and elk in Ontario. No evidence exists that the disease has been or can be transmitted to humans. However, its relationship to diseases such as mad cow disease that can affect human health has heightened public concern. The deer and elk farming industry have been negatively impacted by CWD concerns.

In order to ensure Ontario is well positioned to respond to the threats posed by CWD the Chronic Wasting Disease (CWD) task team was established and includes representatives from the Ontario Ministry of Natural Resources (MNR), the Ontario Ministry of Agriculture and Food (OMAFRA), the Ontario Ministry of Health and Long-term Care (MOHLTC), and the Canadian Food Inspection Agency (CFIA). Task team members have worked collaboratively to prepare the Ontario Chronic Wasting Disease Surveillance and Response Plan.

The Plan identifies the risks to wild and captive members of the deer family (e.g. white-tailed deer, elk) associated with Chronic Wasting Disease (CWD) and provides for multi-

agency coordination in 5 key areas: prevention, surveillance, control and eradication, recovery and communications.

The Plan identifies roles and responsibilities for government ministries/agencies, related to potential response actions and identifies the need to collaborate with affected stakeholders and the public to ensure preventative steps and potential response actions are effective.

A social and economic impact analysis conducted by Stratus Consulting (April 2004, Appendix IV) confirms that CWD in Ontario could have significant primary and secondary effects on the provincial economy. An initial discovery of CWD in either captive or wild deer could see a direct reduction of more than $11.0 million in provincial revenues from the hunting community. Discovery of CWD anywhere in the province will impact the ability of the cervid farm industry to market its products. In addition, if eradication of captive animals is needed, compensation payments to owners could amount to several millions of dollars.

Public and stakeholder engagement will be critical in achieving program goals associated with CWD prevention and management in free-ranging deer and elk. The task team, in collaboration with the public and stakeholders will further develop effective preventative measures and take control actions, should they be necessary, to ensure both biological and socioeconomic goals are met.

Surveillance is the most effective way to ensure early detection and to ensure response actions are effective. Ontario's CWD surveillance program was established as a pilot project in 2002 and continued as an annual program in 2003.

The task team will periodically review the plan with stakeholders and the public. The plan will be updated to provide additional guidance as needed or to respond to changes in organizations, conditions, experience, or scientific information.

CHRONIC WASTING DISEASE TASK TEAM

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1.0 INTRODUCTION

1.1 Purpose of the Plan

The purpose of the Ontario Chronic Wasting Disease (CWD) Surveillance and Response Plan is to establish a coordinated provincial approach to disease response. The Plan calls for government agencies to work collaboratively with the public and a broad range of stakeholders about the disease. It outlines what Ontario is doing to minimize risk of entry of CWD to the province. If CWD is detected, the response strategy is to minimize the negative impacts of the disease on the province's biodiversity and wildlife health, the environment, affected stakeholders and the economy. The Plan complements disease management mandates and programs of other government agencies (OMAFRA, MOH, CFIA) by building on existing disease management policies and programs, identifying and filling gaps and improving integration. It outlines the steps that each task team agency will take to minimize risk of CWD entering Ontario or to control the disease, should it be detected.

Key elements of the plan include awareness and response communications, ongoing surveillance to help ensure early detection, and potential response options to an occurrence. Key desired outcomes include review and development of policy, legislation and regulation, keeping abreast of science and acquiring new science; informing the public, establishing relationships and working collaboratively with stakeholders, landowners and across all levels of government.

As the threat of CWD to Ontario increases, the provincial government will collaborate with stakeholders to make appropriate regulatory or policy changes to restrict or prohibit the movement of captive and free-ranging harvested cervids and their by-products within the province and across borders. The CFIA will respond with their existing policies and regulations related to farmed cervids. The task team will continue to collaborate with public and stakeholders if new policy and legislation is necessary to strengthen the ability of the province to prevent or to manage and eradicate the disease.

This introductory section states the goals for each component of the plan and provides a brief background on CWD and on deer and elk (members of the family Cervidae) in Ontario. It outlines the responsibilities of the agencies that are involved in preventing the entry of CWD into Ontario. It also provides an initial review of the potential social and economic impacts and risks if CWD does enter Ontario.

1.2 Role and Mandate of CWD Task Team and Supporting Agencies

The CWD task team includes representatives from the Ontario Ministry of Natural Resources (MNR), the Ontario Ministry of Agriculture and Food (OMAFRA), the Ontario Ministry of Health and Long-Term Care (MOHLTC), and the Canadian Food Inspection Agency (CFIA). The members of the task team are collaborating and will engage the public and stakeholders in the further development and implementation of the Ontario CWD Surveillance and Response Plan.

MNR is the agency responsible for the protection and health of wildlife populations in Ontario. The primary legislation governing the protection and use of wildlife resources is the Fish and Wildlife Conservation Act (FWCA). MNR is responsible for licensing zoos and for authorizing wildlife custodians that keep native wildlife. MNR will lead CWD surveillance programs in wildlife. The ministry chairs the provincial CWD task team. It is also a member of the Interagency Oversite Committee (IOC) reporting to the Canadian Wildlife Directors Committee that represents federal, provincial and territorial governmental agencies with responsibilities in the environment/wildlife sectors. The IOC, through its members and the departments and agencies that each represents, will assure the integration among the programs and policies of all relevant jurisdictions and legislated authorities that are required for successful implementation of the National Chronic Wasting Disease Control Strategy; achievement of its goals and linkages with other national and provincial plans including Ontario's CWD Surveillance and Response Plan.

Broad stakeholder and public support for CWD management, prevention and response in free-ranging deer and elk is essential for effective disease management. This collaborative approach will involve sharing information on Ontario's CWD status and involvement in the development of CWD preventative and response actions.

OMAFRA conducts extension education for veterinarians in the cervid industry and supports diagnostic surveillance for CWD through the Animal Health Laboratory at the University of Guelph. OMAFRA's Food Safety and Quality Act (2001) governs food safety assurance, disease prevention and controls actions at provincially inspected abattoirs. Regulations are being developed under this new legislation. Current regulations that apply to the processing of any cervids at a provincially-inspected abattoir are enforced under the Meat Inspection Act. In addition to its key role in assuring food safety, the Ontario meat inspection program is an important part of provincial and national animal disease surveillance programs. Inspectors are trained to recognize disease symptoms and to take the necessary samples for laboratory testing that provide early warning of any potential animal or public health threat.

MOHLTC is responsible for protecting public health in Ontario. The legislation under which the MOHLTC acts is the Health Protection and Promotion Act (RSO) 1990). The MOHLTC has a role in communicating the risk to the public on various human health issues. This would include communication to the public respecting the risk of CWD to human health. Presently, there is no evidence that CWD affects human health.

The CFIA administers and enforces several federal policies and Acts related to animal health and food safety. CWD is a reportable disease. This means that any free-ranging or captive, deer or elk that is suspected of being infected with CWD must be reported to the closest CFIA office The legislation most relevant to the management of domestic and foreign animal diseases including CWD is the Health of Animals Act which governs import requirements for live cervids (Appendix I). The CFIA is the lead authority for monitoring, control and eradication of domestic and foreign animal diseases in Canada. In Ontario, the CFIA is currently acting as interim administrator for the CWD Voluntary Herd Certification Program (Appendix II). The administration of the program has experienced some challenges over recent years.

MINISTRY OF COMMUNITY SAFETY AND CORRECTIONAL SERVICES (MCSCS): In the unlikely case of CWD being detected in Ontario at levels that warrant an emergency designation, effective control and eradication may require rapid mobilization of resources and cooperation from many agencies and stakeholder organizations to minimize the potentially negative impact on the agri-food industry and the economy. The Ontario Emergency Management Act and accompanying Order in Council administered by the Minister of Community Safety and Correctional Services (MCSCS) assigns special responsibility to designated provincial ministries to address this type of emergency. The MCSCS has overall responsibility for coordination of provincial emergency management. In practice, Emergency Management Ontario (EMO) facilitates this coordination through the activation of the Provincial Operations Center.

In addition, the CFIA, EMO and OMAFRA in collaboration with other ministries have developed the provincial Foreign Animal Disease Emergency Response Plan (FADE) to augment CFIA's disease control capability with the provincial emergency management system (Appendix III).

1.3 Management and Surveillance Goals

The Ontario Chronic Wasting Disease Surveillance and Response Plan is based on three broad goals:

1. Preventing entry of CWD to Ontario.
2. Early detection and effective response should there be an occurrence.
3. Effective management and recovery following the response.
4. Early public and stakeholder engagement are essential to the achievement of each of these goals.

1.4 Chronic Wasting Disease Background

Chronic wasting disease belongs to a group of diseases called transmissible spongiform encephalopathies (TSEs). It is a degenerative brain disease that kills deer and elk. The emergence of bovine spongiform encephalopathy (BSE) or mad cow disease which is thought to be transmissible to humans has raised the profile of CWD and other diseases of the TSE group. The Centres for Disease Control has issued this statement: "It is generally prudent to avoid consuming food derived from any animal with evidence of a TSE. To date, there is no evidence that CWD has been transmitted or can be transmitted to humans under natural conditions. However, there is not yet strong evidence that such transmissions could not occur," (APHIS fact sheet, Sept. 2002).

CWD was first described in captive mule deer in Colorado in 1967. It was first detected in wild cervids in 1981, although it is thought to have infected wild herds before then. In the U.S. CWD has been found in mule deer, white-tailed deer or elk in captive facilities in Colorado, Kansas, Minnesota, Montana, Nebraska, New York, Oklahoma, South Dakota and Wisconsin. It has been confirmed in free-ranging deer and elk in Colorado, Illinois, Nebraska, New Mexico, New York, South Dakota, Utah, West Virginia, Wisconsin and Wyoming (Fig. 1). CWD was confirmed in a bull moose killed by an archer in Colorado in September 2005.

In Canada, CWD was first recognized in captive mule deer in the Toronto Zoo in the mid-1970's (the symptoms were not confirmed as CWD until several years after the herd died off). No other incidence of the disease occurred until it was confirmed in two wild mule deer in Saskatchewan in 2001. Since then it has persisted in Saskatchewan's free-ranging mule deer and white-tailed deer populations and has been confirmed in wild mule deer in Alberta and in captive deer and elk herds in Alberta and Saskatchewan. There is no evidence that any Ontario deer or elk are infected with CWD. However, these occurrences and recent confirmation of CWD in captive and wild white-tailed deer in New York State have heightened concerns about the spread of the disease to Ontario.

The cause of CWD appears to be abnormal infectious proteins known as prions (proteinaceous infectious particles, protease resistant prions, or PrP^{res}). A prion is a normal cellular protein involved in synaptic function at the neuron and coded by a single gene. A protease resistant prion corrupts the normal cellular prion and causes it to become protease resistant. Protease resistant prions accumulate and cause vaculation of neurons and loss of function. Other livestock TSEs include scrapie in sheep, BSE in cattle, and transmissible mink encephalopathy. There is also a TSE in cats.

CWD is known to naturally infect white-tailed deer, black-tailed deer, mule deer and elk. The first known naturally occurring case of CWD in moose was confirmed in Colorado in September 2005. The disease is not known to affect domestic livestock, including red deer, red deer/elk hybrids and fallow deer. Infected animals can appear healthy and robust during early stages. Clinical signs of the disease, including behavioural changes and emaciation or loss of body condition, only appear in the final stages before death (typically within 16 months of exposure). Pneumonia often causes death; it results from difficulties with swallowing. Other clinical signs include repetitive behaviours, depression, drooling, wide body stance, and fine head tremors. The clinical signs are not specific to CWD and can resemble other conditions such as malnutrition. No treatment exists, and the disease is fatal.

Routes of transmission of CWD may include vertical transmission (from dam to offspring), as well as horizontal transmission (animal to animal) via contact with saliva, urine, and feces. Researchers believe the route of infection is oral, so the concentration of animals through captivity, artificial feeding, and clustering in winter deer yards are all thought to increase the potential for disease transmission. Prions are resistant to degradation in the environment. Transmission through urine, feces, or contaminated soil is therefore possible.

Although studies showed that measured prevalence of CWD did not change in Colorado and Wyoming over three years (1997-99), change in prevalence would not likely be detectable over such a short time frame given the known slow rate of increase in CWD prevalence in most free-ranging populations, (Miller, M. W., et al, 2000) . Field data collected over a longer time period (1983-99) from both Colorado and Wyoming shows a marked increase in prevalence over this period, leading researchers to believe that CWD prevalence may be slowly increasing in some free-ranging deer and elk populations (Miller, M. W., et al. 2000). Since 2002, Colorado has tested 288 moose and one animal was confirmed positive for the disease in September 2005.

Researchers have observed more rapid transmission in animals kept in confinement. These observations raise the possibility that transmission may depend on the density and dispersal of animals as well as the concentrations that result from artificial feeding and baiting.

Dr. Ian Barker of the University of Guelph diagnosed the first presumptive case of CWD in Canada in 1981 in a group of ten mule deer sampled at the Toronto Zoo in the late 1970's. The deer appeared to have a wasting syndrome. They died off and were not replaced. No further evidence of CWD has been found at the Toronto Zoo or in the surrounding area. There is currently no evidence that deer and elk in Ontario are infected with CWD.

Figure 1 is a map showing the distribution of CWD in free-ranging and captive cervid populations in North America.

Figure 1: Canada – U.S. Distribution of Chronic Wasting Disease in Captive and Free-ranging Cervid Populations, June 1, 2005 (USGS National Wildlife Health Center) updated by MNR (Alberta and West Virginia information) October 2005.

In the eradication program in Alberta and Saskatchewan, the CFIA has observed that the prevalence of CWD in captive cervids is generally very low. However, the CFIA's eradication policy requires the destruction of the entire herd on an affected site, even if

only a single animal is infected. Although no patterns of disease have been observed in either sex or in age groups, current research indicates that CWD is most likely to occur in animals that are 16 months of age or older.

The gold standard test for CWD requires fixing tissue from the animal's brain on a microscope slide and treating it to reveal if it contains protease resistant prions. The process, called immunohistochemistry (IHC) staining, must be done on tissue from the obex area of the brain, which is part of the brain stem. In addition, IHC tests using tissue from the retropharyngeal lymph nodes or tonsil may indicate early infection in deer, but not in elk. More rapid and automated tests are being approved by CFIA for use on both obex and retropharyngeal lymph nodes. Researchers are continuing to seek a test that can detect CWD in live cervids.

1.5 Deer and Elk in Ontario

Deer and elk in Ontario live in both captive and free-ranging situations. Both white-tailed deer and elk are farmed, kept in zoos and private collections, and occasionally held by wildlife custodians. Ontario farmers also raise fallow deer, red deer, and sika deer. Zoos keep mule deer from time to time. Free-ranging populations of white-tailed deer live in southern, central and northeastern Ontario and along the Minnesota border in northwestern Ontario.

Elk once resided in Ontario, but the combined effects of harvest and habitat loss eliminated them. Ontario reintroduced elk to the province in the 1930s, and a small herd formed in the Burwash area south of Sudbury. Before 1990 biologists estimated the herd to be 50 to 150 animals. In 1998 and 1999, as part of a plan to restore elk in Ontario, 443 elk were transported from Elk Island National Park in Alberta. They were released at four sites across Ontario – Lake of the Woods, Burwash near Sudbury, Bancroft, and Blind River. Elk introductions stopped in 2001 because of concerns about the potential for introduction of CWD. Ontario's elk population currently numbers about 400. There is no open season for elk hunting in Ontario.

Farmed Deer and Elk

Since the mid-1980s, Ontario farmers have raised deer, elk and deer/elk hybrids for venison, velvet, hides and live animal sales. Farmers sell live animals for breeding or for export to hunting ranches in jurisdictions outside of Ontario. Ontario does not permit hunting of white-tailed deer, elk or elk hybrids in enclosures.

Free-Ranging Deer

There are approximately 123,185 km^2 of suitable deer habitat in Ontario. Biologists estimate the province's population of free-ranging white-tailed deer at 400,000 animals. The severity of winters, the quality of habitat, deer mortality, primarily from hunting, other climatic factors and land use policies affect deer populations. Deer are found in southern Ontario, in the northeast from Sault Ste. Marie and North Bay to Cochrane, and in the northwest from Thunder Bay to Red Lake.

Deer in southeastern and central Ontario migrate between summer and winter ranges. However, research has not established whether deer in the southwest, northeast, and northwest also migrate seasonally. Summer densities of southeastern and central Ontario deer vary from 1.4 to 7.0 deer/km^2; winter densities vary from 8.5 to 46.3 deer/km^2, (Broadfoot et al, 1996). Deer travel distances that range on average from 11 km in more southerly locations such as the Barrie area to more than 30 km in northerly yards such as the Loring deer yard located south of North Bay on the Ontario Shield. Research in Ontario has shown that deer migrate between seasonal ranges in response to snow depth.

Free-Ranging Deer Management

The system used to manage deer in Ontario at a sustainable level depends, to a large degree, on land ownership. In 1981 Ontario implemented two approaches to control the harvesting of deer: the controlled hunt system, used mainly in southern Ontario; and a selective harvest system known as the antlerless tag system, used in the rest of the province. The province is administratively divided into Wildlife Management Units (WMUs) with specific harvest targets or hunter numbers developed for each WMU.

On lands located in central and northern Ontario which are predominately under crown ownership, deer harvest is managed selectively by the antlerless tag system. This system, allows wildlife managers to control the sex and age of legally harvested deer. Although only one licence per hunter is permitted, no limits are placed on the licences issued for harvest of male deer older than fawns. The harvest of antlerless deer (does and fawns of both sexes) is managed by controlling the number of antlerless tags issued per WMU allocated through a lottery system. In some units where deer densities exceed planned population objectives, hunters have the option to apply for more than one antlerless tag, enabling them to harvest two or more antlerless deer per season.

The controlled hunt system is applied primarily to areas dominated by private lands located in southern Ontario. This system controls the number of hunters by limiting the number of licences that are available per area.

Under these harvest management systems, managers can influence total deer numbers and densities to achieve ecological, social, economic and cultural objectives.

Movement

All or part of carcasses of the three cervid species that are susceptible to CWD (white-tailed deer, mule deer and elk) that have been legally harvested from other jurisdictions can currently be brought into Ontario with proof that the animal was legally harvested and is legally possessed.

The discovery on May 20, 2003, of a single case of BSE in a cow in Alberta caused the United States Department of Agriculture (USDA) to temporarily halt imports of live ruminants (animals including deer and elk, and other species with four-chambered stomachs that chew cud) and most ruminant products from Canada. On August 15, 2003, following a review of the international standards set for animal health, an exhaustive

epidemiological investigation into the case by Canada, and additional mitigation measures put in place by Canada, the USDA announced it would issue import permits for hunter-harvested wild ruminant game for personal use. At the time of this writing, hunters can bring wild ruminant meat products intended for their personal use into the U.S. through designated ports of entry. Each imported carcass requires a "Veterinary Services Special Permit for the Importation of Hunter-Harvested Wild Ruminant Meat," and a valid hunting license or a photocopy of one. Up-to-date information on U.S. import requirements for hunter harvested wild ruminant meat products can be found on the website for the Animal and Plant Health Inspection Service (APHIS)-National Center for Import/Export (NCIE) at: www.aphis.usda.gov/vs/ncie/alerts.html

Information can also be obtained by calling the APHIS National Center for Import and Export at (301) 734-3277.

1.6 Potential Social and Economic Impact of CWD Detection in Ontario's Cervid Populations

An economic analysis was prepared as part of this plan to anticipate the potential economic impact should chronic wasting disease (CWD) spread into Ontario. The analysis focuses on primary economic impacts of the disease on free-ranging deer and captive deer and elk, as well as secondary impacts on other sectors of the Ontario economy.

As of 2002, there were approximately 29,910 captive deer and elk on 350 cervid farms in Ontario, including slightly more than 4,000 elk and white-tailed deer (both species are susceptible to CWD). Red deer/elk hybrids, fallow and sika deer comprise the balance of cervids raised on farms. Each year between 1999 and 2001 about 3,000 cervids were slaughtered. These numbers have been significantly reduced since closure of U.S. borders to Ontario live cervid imports in 2004.

The total number of deer hunters in Ontario has averaged around 155,000 resident and non-resident deer hunters in the last 4 years. Non-resident hunters account for roughly 2% of this total.

A social and economic impact analysis was conducted for the CWD task team by Stratus Consulting (April 2004, Appendix IV). If cervid farmers reduce production or if hunters stop hunting (or hunt less often), all involved will incur losses. In addition, they will spend less, creating a ripple effect throughout the Ontario economy. Table 1 summarizes five impact scenarios modelled in this analysis and the potential economic impacts resulting from each.

Additional estimates of economic impacts from CWD, some of which could not be quantified at this time, include:

- The impact of a 25% reduction in hunting efforts by aboriginal hunters could be more than $1.5 million a year.

- Licence revenues would decline by between $260,000 and $1,330,000 a year.

- Surveillance costs for the entire province are about $90,000 (2005) per zone per year. Should captive animals need to be eradicated, compensation payments to owners could amount to several millions of dollars under plausible scenarios. Because other costs of response and control will depend on choices made when an outbreak occurs, they have not been estimated here.

As outlined in Table 1, discovery of CWD in Ontario could easily lead to significant economic loss. Consequently, substantial efforts to keep CWD out of Ontario are likely to be economically justified.

Table 1. Social-economic impact model results for CWD detection in cervids in Ontario (reductions in thousands, 2003$) (ref.: Stratus Consulting, 2004)

	Scenario A	Scenario B	Scenario C	Scenario D	Scenario E
Activity	**Farming**	**Farming**	**Farming**	**Hunting**	**Hunting**
Impact scenario	**25% reduction in elk/WTD[a] deer farming**	**100% reduction in elk/WTD deer farming**	**25% reduction in elk/all deer farming**	**5% reduction in hunter effort**	**25% reduction in hunter effort**
Initial expenditure reduction	1,334	5,341	11,167	2,234	11,169
Economic impacts modelled from SEIM					
Value added	1,387	5,557	11,678	2,361	11,804
Wages and salaries	750	3,004	6,311	1,406	7,029
Employment (person-years)	31	123	257	44	220
Total tax impacts	363	1,456	3,044	714	3,572
Imports into Ontario	383	1,534	3,193	646	2,732
Reduction in hunter welfare					
Reduced consumer surplus	na	na	na	19,000	31,676

a. WTD = white-tailed deer.
na = Not applicable. SEIM= Socio-economic Impact Model

1.7 Risk Assessment

Scientists have a limited understanding of the cause and transmission of CWD. The CWD task team has therefore begun a preliminary risk assessment of CWD in Ontario to guide efforts to prevent and track the disease. As scientific knowledge increases, it will be necessary to review and adapt prevention and surveillance efforts when experience shows a change is needed.

The current understanding of CWD suggests there are several ways it could enter the province:

1. Movement from the U.S. or other provinces of live diseased cervids onto deer or elk farms or zoos.
2. Movement of diseased cervids for release into the wild.

3. Migration of diseased free-ranging cervids across borders.
4. Infection of captive animals through illegal use of animal protein feed.
5. Importation of diseased dead cervids or parts of cervids.

The risk of CWD entry by any of these routes ranges from low to high for the following reasons:

Low to Moderate Risk Factors:

1. Live cervids can only be transported within the province and/or between provinces under the authority of a transportation permit issued by the CFIA. In 2001, the CFIA made CWD a reportable disease. Federal requirements to receive a permit for import of live cervids from the U.S. to Canada are described in Appendix I. In general, the CFIA does not issue permits for the import of cervids into Canada from any state in the U.S. that had or has diagnosed CWD or if the herd of origin is located within 40 km of any wild population known to be infected with CWD. This includes New York State. No animals have been imported from New York for farming purposes since 1998.

2. Movements of live elk to Ontario for release into the wild were stopped in 2001. Alberta has observed the Elk Island National Park herd – the source of the wild elk that were brought to Ontario – for signs of CWD since 1996. There is no evidence of CWD in any elk from Elk Island National Park. Since 1999, 45 of the elk that died after relocation to Ontario have tested negative for CWD.

3. Deer and elk have not been rendered since early 2002. The federal Feeds Act, administered by the CFIA, regulates the type of animal protein that is permitted in commercial feed products. Feeding of ruminant protein to ruminants is prohibited.

Moderate to High Risk Factors:

4. The province of Saskatchewan and the state of New York are the jurisdictions closest to Ontario where CWD has been confirmed in free-ranging deer. Both of these jurisdictions have expanded their efforts to track and eradicate the disease in their populations of free-ranging cervids. Ontario has taken steps to reduce the risk of infected cervids from hunter-harvested cervid carcass parts entering Ontario.

5. Meat and carcasses of hunter-harvested cervids could, until November 2005, be imported from another jurisdiction to Ontario without inspection or permit if the animal was harvested legally and is for personal use. The November 2005 provincial regulation now restricts the possession in Ontario of high risk parts of harvested cervids (except moose and caribou) from all other jurisdictions. Some states where CWD has been confirmed also regulate the hunter-harvested carcass parts that can be exported from the CWD eradication zone. All CWD-positive states require testing of animals harvested in CWD eradication zones during the legal hunting season. CWD positive results are

reported to the hunter's home state or province. The hunter and the Ontario MNR are advised by state officials, if animals harvested by an Ontario resident test positive for CWD. Notification may take up to several weeks.

2.0 CWD PREVENTION

Ontario's primary goal is to prevent the entry of CWD into the province. This section of the plan outlines current policies and programs that reduce the risk that CWD will infect cervids in Ontario. In addition to policy development and interagency/jurisdictional liaison and collaboration, current and potential activities that relate to risk reduction include:

- Conditions on permits to manage movement of live cervids – including intra-provincial transfer and release, export, and import.
- Manage disposal of dead captive cervids – including disposal of whole or parts of cervids by governments, farmers, zoo managers, and wildlife custodians;
- Certification of disease-free captive herds
- Regulate use/possession of natural attractants and feeding/baiting of wild deer/elk
- Public/staff awareness of CWD symptoms and risks
- Develop, with public and stakeholder input, a strategy to develop and implement additional, effective preventative measures and control actions, should they be necessary, to ensure both biological and socioeconomic goals are met.

2.1 Movement of Cervids

The federal government through the CFIA and Environment Canada, and Ontario MNR have the ability to regulate the movement of live and hunter-harvested cervids. The Fish and Wildlife Conservation Act (FWCA) enables the MNR to control the import/export of hunter harvested cervids and cervid parts. To reduce the risk of introducing CWD to Ontario, MNR has provided education materials on CWD to hunters to raise awareness of the risks from this disease. Importation of elk from Alberta for release into the wild was stopped in 2001 to reduce risk of CWD introduction. Under the authority of the Fish and Wildlife Conservation Act, MNR authorizes zoos and wildlife custodians that keep native wildlife. Conditions of authorization may include transport-related provisions. MNR policy (Appendix V, WilPp 5.2.2) provides direction to staff and game farm owners on escape and recovery of game cervids from game farms.

The CFIA, under the authority of the Health of Animals Act, has the ability to regulate movement of captive cervids through placement of conditions on permits or by non-issuance of permits for transport. To be eligible for import to Canada, live cervids must meet certain criteria described in Appendix I, including come from CWD-free jurisdictions. These requirements apply to farmed facilities as well as to zoos and wildlife collections. Environment Canada has regulatory powers under the Wild Animal and Plant Protection and Regulation of International and Intra-provincial Trade Act (WAPPRIITA) to regulate the import of live cervids and cervid parts.

2.2 Disposal of Cervid Carcasses

The provincial Dead Animal Disposal Act, administered by OMAFRA, outlines the proper disposal of all dead livestock, as part of normal farm practice regardless of species. The MOHLTC assesses the public health risk and advises on issues regarding burial, composting or incineration of dead and affected animals. If large-scale disposal of captive or free-ranging dead cervids is required, the Ontario Ministry of Environment provides the most appropriate protocol to be followed. Research is ongoing to determine the most efficient and effective approach for disposal. The current best disposal practice for individual farmed animal carcasses is on-site burial. Hunter-harvested carcasses are either left at the kill site or disposed at an approved land fill site.

2.3 Certification of Disease-free Herds

The CFIA currently oversees the Canadian Chronic Wasting Disease Voluntary Herd Certification Program (Appendix II) to cervid breeders in Ontario. This program was established for trade purposes to enable cervid owners to have their herds certified as "elite" with respect to absence of CWD. The goal of the certification program was to inform potential buyers of the level of risk associated with that herd/animal being infected with CWD. The risk lowers relative to the length of time the herd has been enrolled in the program.

There are six levels in the certification program, from the entry level, "Level E," to the highest disease-free level, "Certified." It takes at least five years for an enrolled herd to reach the "Certified" level. Any owner of elk or deer facilities who agree to comply with the provisions of the CWD Voluntary Herd Certification Program may register. As of September 2005, approximately 30 of the remaining 150 cervid farms in Ontario are either enrolled or have applied to register with this program. Administration of the program has experienced some challenges in recent years.

The Health of Animals Act requires farms and zoos to report suspicious cervid deaths to the CFIA. If a zoo or farm wishes to sell cervids from their herd for purposes other than slaughter, the herd must be tested for tuberculosis every three years. When the CFIA tests herds for tuberculosis, it also monitors the herds for any evidence of CWD.

2.4 Use/Possession of Natural Attractants, Feeding/Baiting

In Ontario, hunters make or purchase natural attractants to use while hunting in the belief that harvest success will be enhanced. Many of these products are made from deer and elk animal parts or body fluids, including urine-based lures. Since knowledge of the mode of CWD transmission is currently incomplete, there may be risks associated with the use of such attractants if they have been made from infected animals.

In Ontario, the feeding and baiting of free-ranging deer are legal activities used for hunting, viewing and management purposes. In other jurisdictions where CWD is present, such activities that promote increased deer densities have been discouraged or halted as a prevention or control measure. In Ontario, supplementary feeding of deer is not encouraged by MNR. In areas of the province where winter severity (including snow

depths and crust conditions) have negatively impacted the sustainability of deer herds, emergency feeding programs may be implemented depending on local circumstances. Feed usually consists of grain products.

2.5 Data Collection and Information Management

OMNR, OMAFRA and the CFIA are reviewing their data management needs associated with diseases that affect both wildlife and domestic/alternative livestock including CWD and potential linkages with similar needs of other jurisdictions. Integrating national and provincial data sets, while ambitious, would help provinces/states track the movement of CWD. Optimally a data base could include CWD surveillance tissue sample results, a history of disease tests, and cumulative movement data, including origins and destinations of movement between zoos, and private cervid collections. Although task team member agencies support this concept in principle, there may be challenges in both the federal and provincial regulations governing privacy issues.

A CWD scientific technical group comprised of representatives from government and academia across Canada regularly convenes to exchange information on effective approaches to CWD research and management. They occasionally meet with U. S. counterparts to discuss latest CWD research. The group's most recent priority has been to develop a plan to eradicate CWD from Saskatchewan. They have drafted the National CWD surveillance and response plan under the umbrella of the National Wildlife Disease Strategy.

3.0 CWD SURVEILLANCE

3.1 Purpose

The purpose of this section is to outline Ontario's surveillance program to assess the CWD status of free-ranging deer and elk, and to outline the protocols that are in place for surveillance of captive cervids. Surveillance objectives are identified and actions described that will be taken to achieve them. It also describes the testing and laboratory analyses that will be conducted on each sample.

Agencies represented on the task team will maintain information on CWD testing. MNR coordinates CWD surveillance and testing in free-ranging white-tailed deer and elk populations, including those in custodian facilities.

3.2 Surveillance Objectives

The objective of the surveillance program is to detect low level disease prevalence should it be present or otherwise confirm Ontario is free of CWD. Early detection will provide the best chance of eliminating the disease before it becomes established. The surveillance plan is designed to determine if infected cervids are present in an area, to assess how widely an infection has spread, and to decide if subsequent actions to control and eradicate the disease are working.

The surveillance plan is based on current known risk factors and will be reviewed as the scientific understanding of CWD in free-ranging cervids improves. The plan and surveillance objectives will also be reviewed to ensure concordance with any changes to Provincial Emergency Response Standards, or to make changes as new information becomes available.

3.3 CWD Surveillance of Free-Ranging Deer

The approximate land area that requires deer surveillance encompasses 293,965 km^2, of which 123,185 km^2 is estimated as suitable deer habitat. Surveillance for CWD in free-ranging cervid populations over such a large land base is challenging. The province has been divided into a number of surveillance zones to allow priorities for sampling to be set based on the risk of CWD occurrence. Figures 2 and 3 show the CWD surveillance zones across normal deer range in Ontario.

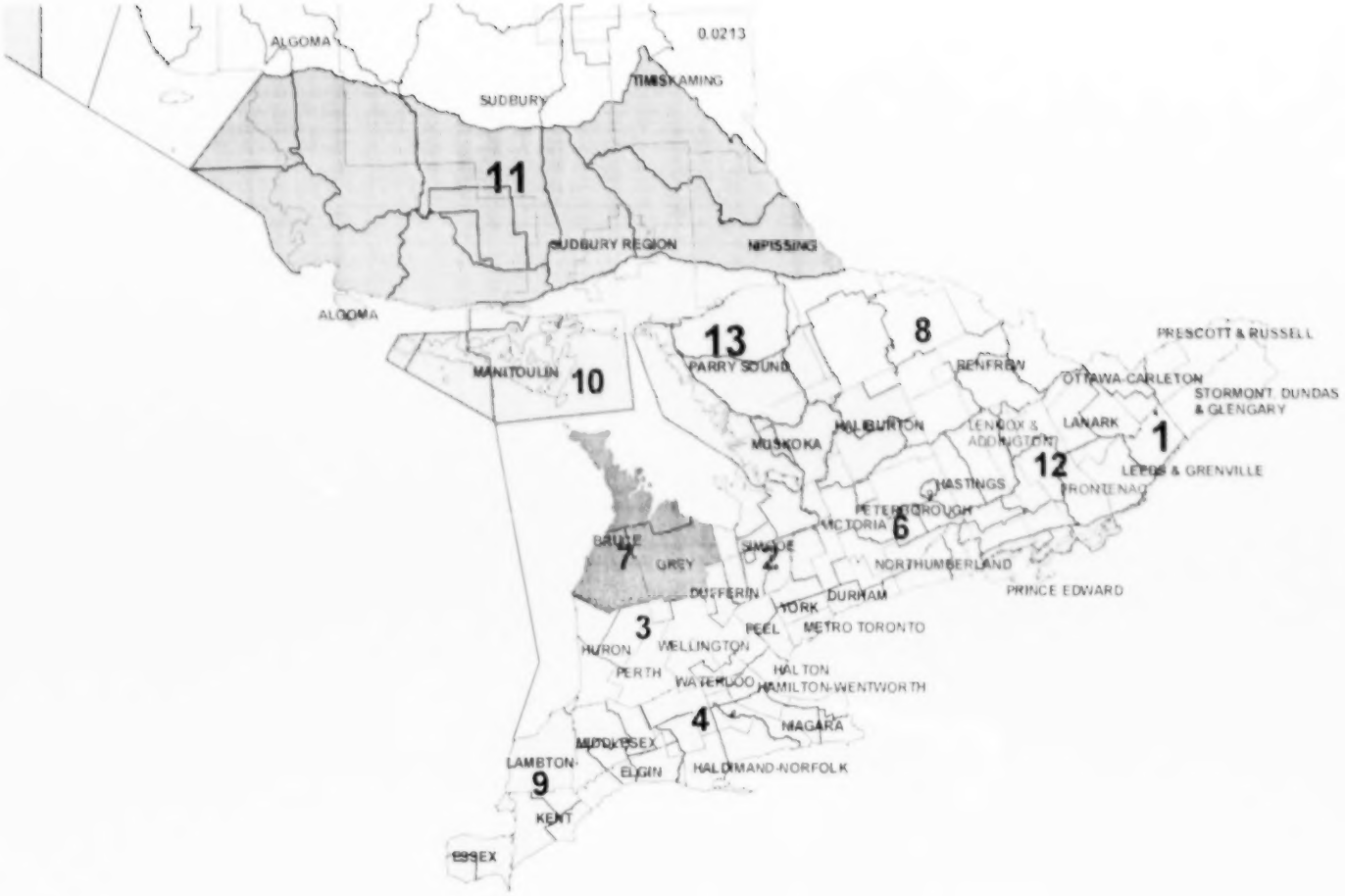


Fig. 2. CWD Surveillance Zones – Southern Deer Range.

Fig. 3. CWD Surveillance Zones- Northern Deer Range.

3.3.1 Risk Assessment

To set priorities for surveillance, factors that are generally considered to contribute to increased risk associated with a CWD occurrence have been identified. Risk factors are features of animals, of the landscape, or of the environment that are associated with a greater probability of CWD occurring in a target region or a target population. Establishing and monitoring the presence (or absence) of such risk factors focuses efforts and helps allocate resources for surveillance. Because in most known areas CWD occurs at a low prevalence, it is difficult to detect, making the assessment of risk factors particularly important. Focusing efforts is also important because CWD is not likely to be evenly distributed across the landscape.

Major CWD risk factors can be divided into two groups: those related to exposure – i.e. the introduction of the disease into a new area or population; and those related to amplification, i.e. the spread of disease through a population or a region (Table 2).

Table 2: CWD Risk Factors Associated With Infection In Free-Ranging Deer

Exposure Risk Factors	Areas adjacent to CWD-positive wildlife (SE Ontario)
	*Areas adjacent to land on which CWD-positive animals, farmed or wild, have lived (Rouge valley, NW Ontario)
	Areas with CWD-positive farmed or captive herds
	Areas with concentrations of farmed or captive elk or deer (SE Ont)
	Areas that have received translocated wildlife (four sites in Ontario)
Amplification Risk Factors	Areas with high elk or deer population density (winter yard areas)
	Areas with a history of CWD animals or CWD-contaminated environments
	Areas with baiting or feeding of wild elk or deer winter concentration areas

* Gray highlight indicates a risk factor applicable to an Ontario site or sites. Sites at risk within the province are shown in brackets (). Adapted from Samuel, M.D., S.D.Wright, M.A.Wild, R. Werge, M. Miller, D. Otis, and D.O. Joly. 2003. Surveillance strategies for detecting chronic wasting disease in free-ranging deer and elk: results of a CWD surveillance workshop, December 10-12, 2002. USGS-National Wildlife Health Center.).

The factors summarized in Table 2 are associated with a higher risk of the presence of CWD. The overall risk for Ontario is increasing with the recent confirmation of CWD in New York State within 150 km. of the provincial border and ongoing inter-provincial trade in farmed cervids. Surveillance priorities for this plan are set annually according to the presence or absence of these factors.

1. Proximity to CWD-Positive Jurisdictions: Ontario borders the provinces of Manitoba and Quebec, and the states of New York, Minnesota, and Michigan. With the exception of Québec, these jurisdictions are surveying intensively for CWD in free-ranging deer and elk. Test results have been negative in Manitoba and Michigan.

Minnesota confirmed two cases of CWD in captive elk in 2002. CWD was confirmed in both captive and wild deer in New York State within 150 km of the Ontario border in April 2005.

2. Proximity to Release Sites of Free-Ranging Elk: In 1998 and 1999, 443 elk from Elk Island National Park in Alberta were released at four sites across Ontario extending from Lake of the Woods to Bancroft. The park is a 194 km^2 site enclosed by fencing that prevents cervids and predators from entering or leaving. As of 2002, forty-five of the relocated elk were screened for CWD. All were negative for CWD at the time of the post-mortem. Similarly, 12 elk moved to Tennessee from the park in 1999 have shown no indication of being infected.

3. High Densities of Free-Ranging Deer: Areas with high densities of free-ranging deer such as emergency or supplemental feeding sites and some agricultural areas may have a greater risk of CWD being present.

4. High Densities of Contained deer and elk, including Farms, Zoos and Collections: Areas with high densities of deer and elk farms, zoos and deer/elk collections may have a greater risk of CWD being present.

3.3.2 Surveillance Priorities

Surveillance zones were established by combining areas with similar physiographic features, densities of cervid farms, zoos and collections and densities of free-ranging deer. Table 3 lists the CWD surveillance zones in order of priority according to the possible risk of CWD being present in free-ranging deer. The surveillance zones are made up of clusters of wildlife management units (WMUs). Without changing their numerical score, zones were arbitrarily elevated by one rank where elk have been released to the wild, or that are located adjacent to a CWD-positive jurisdiction. The CFIA supplied information on the number of cervid farms. MNR provided estimates for fall density of deer for each WMU based on harvest and harvest rate. MNR estimated the harvest using provincial mail surveys, and took regional harvest rate estimates from the results of the Co-operative Deer Study (229 deer radio-tagged from 1984-91).

Both exposure (introduction) and amplification (spread) risk factors were considered when setting priorities for CWD surveillance and sampling in Ontario's free-ranging deer. Data is available on three exposure risk factors, namely, areas with a high density of cervid farms, zoos and wildlife collections, areas where elk have been restored, and areas adjacent to a CWD-positive jurisdiction. Data is also available on two amplification risk factors: areas with a relatively high density of free-ranging deer, and areas where winter feeding or baiting creates high local concentrations of free-ranging deer for short periods.

A scoring system to set priorities for annual sampling was developed, starting with the 2003 deer-hunting season. Each zone is assigned a score based on the following factors:

1. 0-10 points to reflect the relative density of cervid farms, zoos and wildlife collections.
2. 1-5 points to reflect the relative density of free-ranging white-tailed deer (1 is the lower limit because all zones have some deer).

3. 0-5 points to reflect the extent of winter feeding of free-ranging deer in the zone.

The maximum point total is 20.

Table 3. Surveillance Zones and Sample Size Requirements for Surveillance of CWD in Free-Ranging Deer in Ontario.

CWD Zone (ranking score in brackets)	WMUs	Land Area (km^2)`	Area of suitable deer habitat (km^2)	Est. No. of free-ranging deer >1 yr. old[1]	No. deer harvested in fall 2001	Est. No. of cervid farms[2]	No. of cervid farms/ $100km^2$	No. of samples req'd [3] To be 99% confident of detecting CWD at a prevalence of 1%	No. of crews req'd[4]
1 (14.4)	64A, 64B, 65, 66A, 66B	10,900	7,331	33,000	6,635	54.5	0.50	460	6
2 (13.5)	76A, 76B, 76C, 76D, 77A, 77B, 77C, 78B, 78C, 78D, 78E, 81A, 81B	10,500	8,200	7,400	3,160	51	0.49	460	6
3 (11.1)	79C, 80, 85A, 85B, 85C, 86, 87A, 87C	10, 070	6,800	18,500	970	45.5	0.45	460	4
4 (10.9)	79D, 87B, 87D, 87E, 88, 89A, 89B, 90A, 90B, 91A, 91B, 92A, 92B, 92C, 92D	15,150	9,571	21,600	1,490	65.5	0.43	460	6
5 [5, 6] (8.6)	10, 11A, 5, 6, 7A, 7B, 8, 9A, 9B	45,300	2,445	45,000	3,910	11-19	0.02-0.04	460	8
6 (10.7)	60A, 60B, 71, 72A, 72B, 73, 74A, 74B, 75, 78A	12,700	5,766	24,700	5,422	51.5	0.40	460	6
7 (9.7)	82A, 82B, 83A, 83B, 83C, 84	8,700	3,839	27,500	4,480	23	0.26	460	5

CWD Zone (ranking score in brackets)	WMUs	Land Area (km^2)	Area of suitable deer habitat (km^2)	Est. No. of free-ranging deer >1 yr. old[1]	No. deer harvested in fall 2001	Est. No. of cervid farms[2]	No. of cervid farms/ $100km^2$	No. of samples req'd [3] To be 99% confident of detecting CWD at a prevalence of 1%	No. of crews req'd[4]
8 [5] (6.5)	48, 51, 52, 55A, 55B, 57, 58, 61	19,500	5,589	31,400	5,540	9	0.05	460	7
9 (7.5)	93A, 93B, 93C, 94A, 94B	7,450	6,647	3,400	250	18	0.24	460	4
10 (5.6)	43A, 43B, 44, 45	2,445	2,445	18,800	4,835	1	0.04	460	3
11[5] (4.6)	34, 35, 36, 37, 38, 39, 40, 41	65,400	15,088	6,000	810	5	0.008	460	8
12 (4.8)	59, 62, 63, 67, 68A, 68B, 69A1, 69A2, 69A3, 69B, 70	16,500	1,425	64,500	7,790	13.5	0.08	460	8
13 (4.5)	42, 46, 47, 49, 50, 53a, 53b, 54, 56	30,050	27,495	34,000	5,520	6	0.02	460	9
14 (3.7)	11B, 11Q, 12A, 12B, 13, 14	39,300	20,544	18,000	703	5	0.013	460	8
TOTAL		293,965	123,185	353,800	51,515			6,440	88

[1] Fall population calculated as harvest/ harvest rate. Harvest was estimated using the provincial mail surveys. Regional harvest rate estimates were taken from the Co-operative Deer Study results (229 deer radio-tagged from 1984-91).
[2]Data on the number of cervid farms per county was provided by the CFIA. MNR CWD surveillance zones consist of clusters of WMUs, which do not always conform to county boundaries. Given that information on the specific locations of farms within counties was unavailable, it was assumed that farms were evenly distributed across counties. In cases where a county spanned multiple surveillance zones, the total number farms from that county assigned to each surveillance zone was proportional to the relative amount of the county falling within each surveillance zone.
[3]Based on the sample size requirement table provided by Roe and Cannon (1982, p. 30). Sample size has been derived for a 99% confidence level. This column presents the estimated sample size required to be 99 % confident of detecting at least one positive animal if CWD was present in the population at a prevalence of 1 per cent. At a given disease prevalence, the total number of infected animals increases proportional to the population size (i.e., 1% of 100 = 1, 1% of 1000 = 10). Sample size requirements are therefore relatively insensitive to the estimated population size in each surveillance zone. Increasing our probability of detecting CWD (at a 1% prevalence from) 0.95 to 0.99 requires an increase from 300 to ~460 samples analyzed in most zones. Note that this assumes sample collection is evenly distributed throughout the entire sampled area.
[4]This assumes that roving crews will be the primary means of sample collection and that crews will collect samples for five consecutive days in each zone. In some areas samples may be effectively collected by having hunters deposit heads in freezers at MNR or other depots (as is presently done in Saskatchewan and Alberta). It is assumed that in a populated and road-accessible area each sampling crew could effectively solicit samples from a 25 km^2 radius area (~2000 km^2) during a five-day period. Thus the number of crews required is estimated as the huntable area (deer habitat) within each zone/2000. However, because no more than 460 samples are required from any zone, we have capped the number of crews and assume that nine crews could collect samples from across the hunted area of the largest zone (No. 13).
[5] Indicates zone in which elk were released. Zone was therefore elevated one notch in ranking.
[6] Indicates zone which is adjacent to zone where CWD has been detected. Zone was therefore elevated one notch in ranking.

Zones in which elk were released have been arbitrarily elevated one notch in the ranking. Zone 5 in Northwestern Ontario, which is adjacent to Minnesota, where CWD has been detected in farmed elk, was also elevated one notch in the ranking.

According to this ranking system, the top priority for CWD sampling in 2003 is Zone 1, with a score of 14.4. Zone 1 encompasses all of WMUs 64, 65 and 66, which are located in the southern deer range in and around the municipalities of Lanark and Ottawa-Carleton (Figure 2). Appendix VII presents options for surveillance sample methods that will be considered individually or collectively, according to need.

The estimated cost in 2005 dollars is approximately $90,000 per zone. The actual annual cost will be determined by the amount of surveillance and the number of zones sampled each year.

3.4 Surveillance of Farmed Cervids:

CWD is a reportable disease under the Health of Animals Act and Regulations. This makes it a requirement for owners and veterinarians to advise the CFIA if there is a CWD suspect animal. If CWD is suspected, testing is completed and the CFIA will investigate all potential sources of infection. All animals over 12 months of age, that die in herds registered in the CWD Voluntary Certification Program, are required to be tested for CWD.

The CFIA is involved in trace-outs from known infected herds and relies on provincial governments and private owners to conduct CWD surveillance. The CFIA has contact information for the majority of cervid herds in Ontario. The CFIA conducts tests for tuberculosis on many cervid herds every three years. Animals are able to move from these negative status herds to other herds or for slaughter under a permit issued by the CFIA. Those herds that are not tested are identified as "restricted status herds". In these herds animals can only move for slaughter under a movement permit issued by the CFIA. The CWD Voluntary Herd Certification Program requires producers to follow a surveillance program in order for a herd to move from the status of entry level to the final level of disease-free certification (Appendix I).

3.5 Surveillance of Cervids in Other Facilities (Zoos, Custodians, Collections):

Local MNR offices know the location of all zoos, rehabilitation centres and wildlife collection facilities in their Districts. Under the Health of Animals Act, facilities must report to the CFIA any cervid death suspected to be caused by a reportable disease such as CWD. The CFIA distributes information to known cervid owners, including zoos and collectors, regarding disease symptoms.

Any cervid being transported within Canada (e.g. between facilities, and/or between provinces) requires a transport permit from the CFIA. Facilities must regularly test for tuberculosis and brucellosis in order to obtain a permit to move individual or small

groups of animals anywhere other than to an abattoir. A separate permit is required for transport to an abattoir.

3.6 Diagnostics and Testing:

Free-ranging white-tailed deer (from hunter kills, culls or accidental death) and elk (from accidental death) and captive cervids (white-tailed deer, elk, deer/elk hybrids and fallow deer) will be tested using one, and in some instances, two methods, (see Appendix VIII). The testing protocol involves the use of IHC testing on the retropharyngeal lymph node or tonsils, with a sensitivity of 99 per cent or greater (Spraker et al 2002) or an approved rapid test such as BioRad. Testing the retropharyngeal lymph nodes may result in an increase in sensitivity when used in early infections in deer (white-tailed deer and mule deer) not in elk. However, the retrieval of the retropharyngeal lymph nodes requires more expertise than removal of the obex. Whenever possible, the retropharyngeal lymph nodes and obex will be submitted for testing. Research indicates that the infectious prions associated with CWD are detected in the retropharyngeal lymph nodes earlier than in the obex in white-tailed deer and mule deer but not in elk.

All CWD samples will be analyzed at the Animal Health Lab at the Ontario Veterinary College, University of Guelph (http://ahl.uoguelph.ca/). Negative tests from the Animal Health Lab are not retested. This initial test takes about five days to complete once the sample has been submitted.

A sample that appears positive from the first test at the Animal Health Lab in Guelph is labelled "suspicious" and sent to the National Animal Diseases Research Institute Laboratory in Nepean, Ontario, for a second (confirmatory) test, which also takes about five days. The services of other labs may be required. If the National Laboratory analysis confirms a positive result, the sample is considered positive for CWD. Positive test results will be communicated to the Chief Veterinarian, CFIA, who will then contact the appropriate provincial agency, dependant on the source of the positive animal, as outlined in Table 4.

Appropriate agencies will be responsible for providing necessary financial support to the test facilities to ensure priority testing for all samples submitted annually for CWD analysis. Annual samples will include standard surveillance zone samples from free-ranging cervids and from captive cervids whose deaths are suspected to be caused from disease.

3.7 Data Management and Reporting

All surveillance processes require a system of data collection and management that links the entire surveillance operation and provides biological and epidemiological information for disease management and public information. The system must include information on sample collection, tissue tracking, inventory, and test results. The task team agencies are pursuing a number of mechanisms, including the Internet to collect data and provide general information and test results. In the interim, annual operating plans will reflect the

approach to be used to share test results with hunters. The results of surveillance testing for both free-ranging and farmed/captive herds will be shared among task team agencies.

4.0 CWD CONTROL AND ERADICATION

The CWD task team agencies recognize the need to consider all management options and will seek involvement and cooperation of the member agencies, local governments, and stakeholders to take the most effective action to manage CWD in free-ranging or captive deer and elk or to control its spread. The purpose of this section is to outline the policies and programs that could be considered to make the best decisions related to management of CWD. The agency or agencies responsible for responding to a confirmed positive case of CWD will be determined by whether the disease is detected in a captive or a free-ranging deer or elk.

While CWD is considered a foreign animal disease (FAD) in Ontario, it is considered a domestic disease by the CFIA because it has occurred in Canada and persists in the wildlife sector (in Saskatchewan and Alberta). If CWD were detected in Ontario in the domestic sector such as a farm, zoo, or collection, the CFIA would implement the eradication response protocol (Appendix VI). Protocol response actions include communications, quarantine, herd depopulation, and/or agriculture animal surveillance. MNR would coordinate surveillance in free-ranging cervids in a predetermined radius around the affected captive facility as soon as is reasonably possible after disease confirmation.

If CWD is detected in wild deer or elk, the CFIA Chief Veterinarian or TSE specialist will give official confirmation of positive test results to the CWD task team, who will then meet to determine next steps according to the control and response plan outlined in Appendix IX. The task team will also meet with affected stakeholders to determine and recommend effective response actions. MNR will lead enhanced surveillance in a pre-determined radius around the location of the infected free-ranging animal to determine extent and prevalence of the disease. Surveillance results will be used to establish an initial enhanced surveillance and response zone (ESRZ). The CFIA will lead the actions necessary to minimize risk to captive cervid herds within a predetermined radius of the location of the CWD-positive wild deer/elk.

CWD control measures should be continued in a response zone until no evidence of CWD is detected in free ranging deer during three consecutive years of enhanced surveillance.

Figure 4 summarizes the key response decision points and optional action sequences should CWD be detected in either a captive or free-ranging deer/elk. They include:

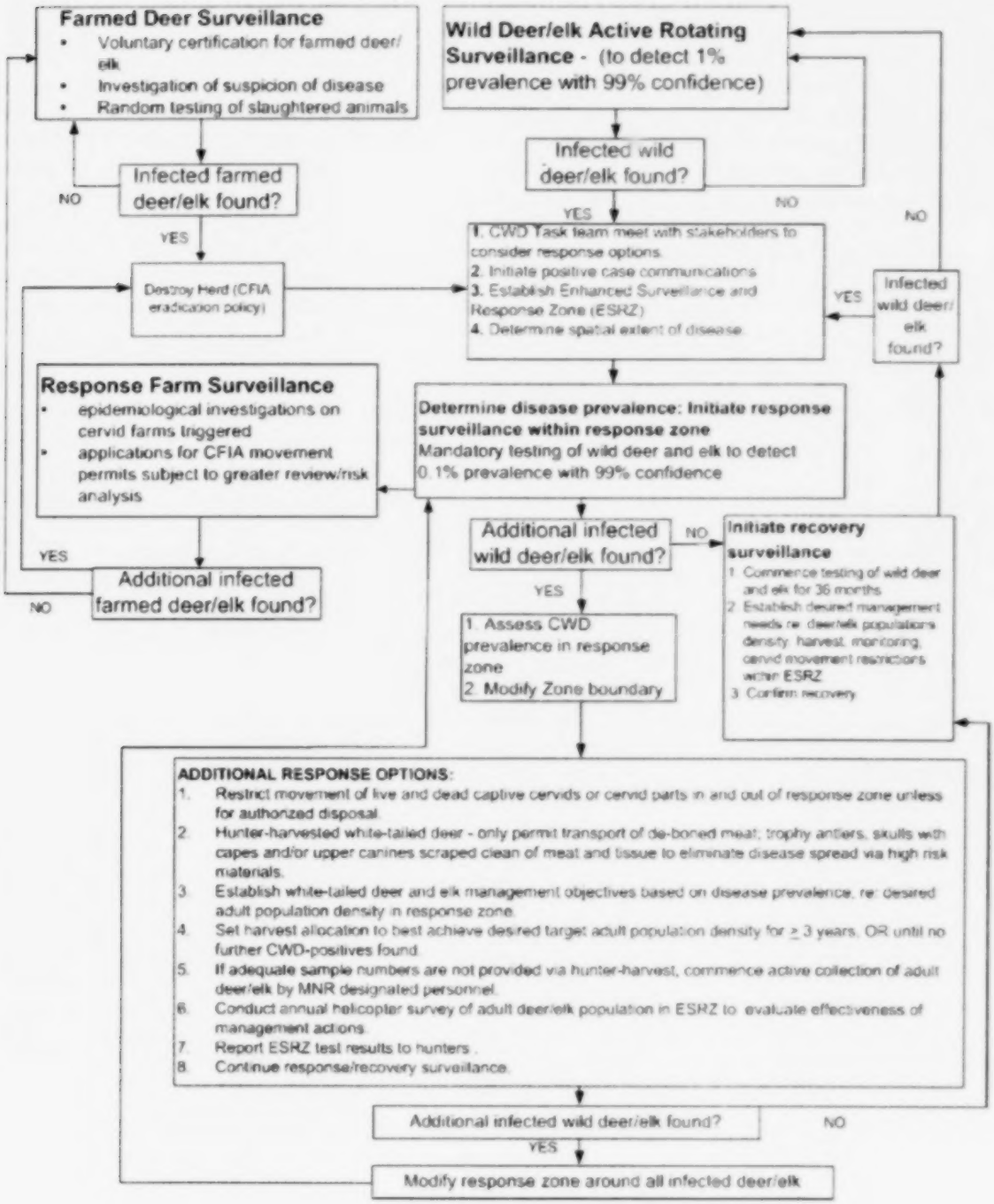
- Surveillance of free-ranging and captive deer and elk for early detection of the disease; rapid response when needed, and to confirm recovery at the appropriate time;

- Positive case communications, as outlined in Table 4;
- Establishing controls to reduce the potential spread of the disease, including restricting or prohibiting baiting and feeding of free-ranging deer and elk, and restricting or prohibiting movement of captive and free-ranging deer and elk and their parts within the province, between provinces, and across the Canada-U.S. border;
- Determining the extent and prevalence of the disease around the disease detection site by enhanced sampling of free-ranging deer and elk.
- Contacting/engaging other agencies and stakeholders – e.g. Municipalities, cottage associations in planning enhanced surveillance and control activities.
- Quarantine and/or destruction of captive herds (as per the CFIA disease eradication policy) and
- Increased harvesting or optional culling of free-ranging herds to eradicate the disease;
- Implementing controls on disposal to reduce risk to human health and the environment.

In the unlikely event that the task team agencies consider the CWD occurrence to be a provincial emergency, Emergency Management Ontario (EMO) will coordinate the provincial emergency response in support of the CFIA according to the protocol provided in the Canada-Province of Ontario Foreign Animal Disease Emergency Response Plan (see Appendix VIII).

There is currently no scientific evidence that CWD can be transmitted to humans. MOHLTC will be the lead agency on issues relating to the public health risk associated with consumption of infected meat. The Ministry of Environment (MOE) will assist with operational guidelines and communications issues related to disposal of dead and infected animals.

Figure 4. CHRONIC WASTING DISEASE RESPONSE IN ONTARIO


Farmed Deer Surveillance
• Voluntary certification for farmed deer/elk
• Investigation of suspicion of disease
• Random testing of slaughtered animals
Wild Deer/elk Active Rotating Surveillance - (to detect 1% prevalence with 99% confidence)
Infected farmed deer/elk found?
NO
YES
Infected wild deer/elk found?
YES
NO
NO
1. CWD Task team meet with stakeholders to consider response options.
2. Initiate positive case communications.
3. Establish Enhanced Surveillance and Response Zone (ESRZ)
4. Determine spatial extent of disease.
YES
Infected wild deer/elk found?
Destroy Herd (CFIA eradication policy)
Response Farm Surveillance
• epidemiological investigations on cervid farms triggered
• applications for CFIA movement permits subject to greater review/risk analysis
Determine disease prevalence: Initiate response surveillance within response zone
Mandatory testing of wild deer and elk to detect 0.1% prevalence with 99% confidence
YES
Additional infected farmed deer/elk found?
NO
Additional infected wild deer/elk found?
NO
YES
Initiate recovery surveillance
1. Commence testing of wild deer and elk for 36 months.
2. Establish desired management needs re: deer/elk populations density, harvest, monitoring, cervid movement restrictions within ESRZ.
3. Confirm recovery.
1. Assess CWD prevalence in response zone.
2. Modify Zone boundary
ADDITIONAL RESPONSE OPTIONS:
1. Restrict movement of live and dead captive cervids or cervid parts in and out of response zone unless for authorized disposal.
2. Hunter-harvested white-tailed deer - only permit transport of de-boned meat, trophy antlers, skulls with capes and/or upper canines scraped clean of meat and tissue to eliminate disease spread via high risk materials.
3. Establish white-tailed deer and elk management objectives based on disease prevalence, re: desired adult population density in response zone.
4. Set harvest allocation to best achieve desired target adult population density for ≥ 3 years, OR until no further CWD-positives found.
5. If adequate sample numbers are not provided via hunter-harvest, commence active collection of adult deer/elk by MNR designated personnel.
6. Conduct annual helicopter survey of adult deer/elk population in ESRZ to evaluate effectiveness of management actions.
7. Report ESRZ test results to hunters.
8. Continue response/recovery surveillance.
Additional infected wild deer/elk found?
NO
YES
Modify response zone around all infected deer/elk

5.0 RECOVERY

This section outlines possible recovery actions and identifies the lead agency that will announce that Ontario has returned to a CWD-free status.

Agencies represented on the task team will collaborate with stakeholders to assess the social and biological effectiveness of CWD management efforts. This will be done through continuous surveillance and monitoring of deer populations, hunters, landowners and other affected stakeholders within the response zone during a recovery period of not less than 36 months (Fig. 4). MNR will coordinate the surveillance, monitoring, and determination of disease-free status for free-ranging cervid populations. The CFIA will coordinate follow-up monitoring, surveillance and recovery of captive cervid facilities.

After confirming free-ranging deer/elk populations are free of CWD, MNR will lead the resumption of the priority schedule for active, rotating surveillance of free-ranging deer (Table 3). The CFIA will lead any surveillance actions required on cervid farms and other captive cervid operations.

As part of the recovery process, the task team will coordinate a follow-up assessment and review of CWD programs. The review will involve the public and stakeholders and will look at:

- Impacts of the CWD management approach on the public and stakeholders
- The need for and extent of requirements to minimize these impacts.
- The need for and extent of CWD risk assessment.
- Potential amendments to the CWD surveillance and response plan.
- The desired densities of target populations of white-tailed deer within the affected area to reduce the risk of a reoccurrence of CWD.
- A provincial harvest strategy for white-tailed deer to achieve population densities that will minimize the risk of CWD occurring elsewhere in the province.
- The results of response and recovery policies and programs.
- The need for amendments to or development of new policies or regulations as a result of the program review and evaluation.

6.0 COMMUNICATIONS: AWARENESS AND RESPONSE

6.1 Public Awareness

Prion diseases such as BSE and its human variant, Creutzfeldt-Jakob disease (CJD), have high profiles with the public and the media. Similar public and media interest is anticipated if CWD is found in Ontario cervids.

Although health officials have confirmed there is currently no scientific evidence that CWD can be transmitted to humans, every precaution must be taken as knowledge in this area is incomplete.

The public has a heightened sensitivity to the threat and potential risks of transmission from new, emerging, infectious diseases such as Severe Acute Respiratory Syndrome (SARS) and West Nile Virus (WNV). Experience has shown, with SARS being the most recent example, that what scientists know about a new infectious disease when it first emerges may change as time passes. Research shows that when authorities are open about what they know and don't know, they give people the opportunity both to understand the risks and to make informed choices.

When communicating, leading clinical specialists are needed as spokespeople to ensure statements to the public are coming from trusted sources. Infectious disease specialists, neurologists, and public health scientists must realistically explain the risks associated with CWD and what is known about human health-related issues.

The following proactive communications-related actions are intended to provide CWD-related information to the public and media in advance of any potential occurrence of the disease. Educating the public and the media in advance will facilitate a reasoned response should CWD be detected in Ontario.
The objectives of the CWD Public Awareness efforts are as follows:

- To inform stakeholders, media, and the public about CWD so they may have a reasonable knowledge of CWD and its potential threat to farmed and free-ranging deer and elk health.
- To indicate that there is currently no scientific evidence that CWD can be transmitted to humans but that precautionary measures are important
- To maintain a source of general CWD information for interested parties to consult prior to and following any incident of CWD in Ontario.

6.2 Awareness and Readiness Phase:

The following list identifies a number of possible communications strategies that could be implemented if CWD is detected in Ontario. The merits of each strategy can be considered as the situation unfolds. Agencies will discuss and coordinate the implementation of communications strategies as outlined in an approved CWD Awareness Communications Plan (Appendix X).

1. Prepare and distribute an organization chart outlining the communications flow and protocols for the situation response team, based on principles of good risk management communications and best practices (Table 4). As part of the Chronic Wasting Disease task team, assist in identifying key policy decisions, and identify the associated communication needs.

2. Ensure the provincial communications response team are fully briefed, trained, and prepared to assume their rapid response role, including readiness and accessibility around the clock. Preparation will include access to pagers or cell phones.

3. Develop and approve a stakeholder communications/engagement plan that identifies contacts, key messages, protocols for notifying and engaging stakeholders, and a planning process for local community meetings if warranted

4. Brief provincial decision-makers, officials, and key stakeholders about Ontario's approach in the event of a reported positive case of CWD.

5. Develop and approve internal communications materials for advising government staff of new information and developments. Materials should be prepared for e-mail memos, bulletins, conference calls, and staff meetings.

6. Work with key external stakeholders to develop processes and tools to keep them informed of new information and developments, and briefed on roles and responsibilities.

7. Develop and have approved public notices appropriate for daily and local newspapers, key stakeholder publications, and public service announcements for local radio stations.

6.3 Positive Case Communications

The lead for communications responsibilities differs depending on where the incident of CWD occurs:

- If the incident occurs on a farm, in a zoo, or in a cervid collection facility, CFIA will take the lead for communications and will respond to initial media inquiries.
- If the incident occurs in free-ranging cervids or in a custodian facility, MNR will take the lead and carry out the positive case communications strategy outlined below.

Whether the CFIA or MNR takes the lead, the CFIA, MNR, OMAFRA, MOHLTC and MOE (regarding carcass disposal) will continue to work collaboratively on actions and communications as provided in the approved Positive-case Communications Plan (Appendix XI).

The objectives of the positive case communications strategy are as follows:

In the event of a confirmed positive case of CWD in Ontario free-ranging or farmed cervids, to:

1. Ensure provincial decision-makers, officials, ministers, MPPs, municipal leaders, industry groups, and other key external and internal stakeholders are immediately notified and given timely updates through approved protocols.

2. Ensure coordinated, consistent, accurate, and timely messaging on the status of the disease and the province's role in the response.

3. Ensure information is continually communicated to the media, stakeholders, and the public.

4. Use timely, accurate and reliable communications to address public concerns and build public support and confidence that the situation is being managed properly.

5. Use proactive methods to tell the public, stakeholders, and the media about developments and activities.

6. Assist with the transition from emergency response to regular preparedness.

7. Assist in communicating recovery plans and programs to media, stakeholders, and the public, including information about compensation.

Speed will be critical during the province's first response. Table 4 describes the actions to be included in the Positive Case Communications Strategy.

Table 4. Ontario's Chronic Wasting Disease Positive Case Communications Chart

This chart describes the communications that will take place in the event of the first confirmed case of CWD in Ontario

Positive Case on a Farm	Positive Case in the Free-ranging cervid population
1. The Chief Veterinary Officer for Canada or TSE specialist, CFIA will give **official confirmation** of CWD-positive test results to the CFIA staff, who will advise the **OMAFRA Chief Veterinarian** for Ontario or alternate contact.	The Chief Veterinarian or TSE specialist, CFIA will give **official confirmation** of CWD positive test results to the **CWD task team**.
2. **Intergovernmental communications** will begin immediately, with notice proceeding to the appropriate Director-ADM-DM-Minister's offices in CFIA, OMAFRA, MNR, and MOHLTC.	**Intergovernmental communications** will begin immediately, with notice proceeding to the appropriate Director-ADM-DM-Minister's offices in CFIA, OMAFRA, MNR and MOHLTC.
3. The CFIA will be the lead agency to issue public announcements and to implement response strategies. A **conference call** of key representatives of **CWD task team** (CFIA, OMAFRA, MNR, and MOHLTC) will be arranged as soon as possible to share information related to test results and disease response strategies.	MNR will be the lead agency to issue public announcements and to implement response strategies. A **conference call** of key representatives of **CWD task team** (CFIA, OMAFRA, MNR, and MOHLTC) will be arranged as soon as possible to share information related to test results and disease response strategies.
4. OMAFRA and CFIA officials will call key stakeholders, including appropriate contacts in adjacent jurisdictions, legislators, and municipal officials where the discovery is made, to inform them of the CWD confirmation.	MNR and CFIA officials will call key stakeholders, including appropriate contacts in adjacent jurisdictions, legislators, and municipal officials where the discovery is made, to inform them of the CWD confirmation.
5. Respond to **media inquiries only**. *Note: CFIA has the lead on this option.*	OPTION 1) **media advisory** OPTION 2) **provincial news release** OPTION 3) Respond to **media inquiries only**.
6. N/A	MNR officials will confirm the presence of CWD in Ontario and outline the CWD response plan. At **a news conference**, the media will be given information packages on CWD and advised where further information and updates can be obtained (including a CWD Ontario government website). MNR/OMAFRA/MOHLTC spokespeople will attend.
7. In the days following the finding, ministry communications service branches will coordinate efforts to have ministry officials give appropriate **interviews** for public and media. *Continual public communications will maximize public and media understanding of the situation.*	In the days following the finding, ministry communications service branches will coordinate efforts to have ministry officials give appropriate **interviews** for public and media. *Continual public communications will maximize public and media understanding of the situation.*
8. Ministry communications staff will **collect and analyze** news stories to determine the effectiveness of communications, and if necessary modify the communication strategy.	Ministry communications staff will **collect and analyze** news stories to determine the effectiveness of communications, and if necessary modify the communication strategy.

6.4 Positive Case/Reaction Phase:

Positive Case on a Farm

1. Ensure all communications highlight the lead role of the federal government (CFIA) in investigating the positive case and, if necessary, carrying out immediate control measures. Direct media and public inquiries on these matters to the CFIA.
2. Issue a media release. The CFIA will make the decision to issue the release.
3. Distribute regular progress reports to staff.
4. Post information and updates on relevant web sites (MNR, MOHLTC, OMAFRA and CFIA). Ensure linkages to other sites.
5. Place pre-approved public notices in daily and local newspapers and key stakeholder publications. Place public service announcements on local radio stations.
6. Use proactive methods to tell media, stakeholders, and the public how the federal and provincial governments are collaboratively addressing impacts on communities and businesses.
7. Continue communicating with the media, monitoring the media, managing issues, and coordinating corporate communications.

Positive Case in the Free-ranging Deer/Elk Population

1. Ensure all communications highlight the lead role of MNR in investigating the suspected positive case and, if necessary, carrying out appropriate control measures. Direct media and public enquiries on these matters to MNR.
2. Coordinate a news release or announcement of the suspected positive case with CFIA. MNR will issue the release.
3. Distribute regular progress reports to staff.
4. Post information and updates on relevant web sites (MNR, MOHLTC, OMAFRA, and CFIA). Ensure linkages to other sites.
5. Use proactive methods to inform the public, stakeholders, and the media about developments. Good communications will help ensure that stakeholders understand risks.

6. Develop and carry out province-wide communications about Ontario's CWD recovery plan.

7. Use proactive methods to tell media, stakeholders, and the public how the provincial government is addressing impacts on communities and businesses.

8. Continue communicating with the media, monitoring the media, managing issues, and coordinating corporate communications.

6.5 Agreements between Agencies

CWD in farmed cervids is a reportable disease under Canada's Health of Animals Act. This means that the CFIA has responsibility for controlling and eradicating the disease in farmed animals. The CFIA, with support from OMAFRA, takes part in trace-outs from known infected animals and surveillance under the terms of the Canada-Province of Ontario Foreign Animal Disease Emergency Response Plan (Appendix III).

If CWD is first suspected among wildlife, MNR officials will immediately notify the CFIA who will activate the appropriate emergency protocols. MNR will be responsible for engaging affected stakeholders, for conducting surveillance and for reducing infected or potentially exposed deer and/or elk populations as required.

6.6 Roles and Responsibilities

Table 5 outlines the roles and responsibilities of the lead government agencies on the communications subcommittee of the Chronic Wasting Disease task team. The following are the members of the CWD Communications Subcommittee for 2005-06:

CWD Communications Subcommittee

Marnie Clement, Chair	MNR	Communications Advisor/Planner	(705) 755-1355
Susan Murray	OMAFRA	Writer/Planner	(519) 826-3197
Margaret Boyd	CFIA	Communications Advisor	(519) 837-5852
Mary-Margaret Crapper	MOHLTC	Senior Communications Adviser	(416) 327-4358
Freya Long	MNR	Fish and Wildlife Communications Specialist	(705) 755-1358

Table 5. CWD Communications: Roles and Responsibilities

Jurisdiction	Role	
	Awareness	**Response**
Federal: **Canadian Food Inspection Agency** (CFIA)	• Provide CWD fact sheets. • Issue advisories. • Member of CWD task team Communications Subcommittee. • Main contact for media inquiries.	• Lead communications if CWD is found on any farm or zoo operation in Ontario.
Provincial: **Ontario Ministry of Agriculture and Food** (OMAFRA)	• Maintain CWD information specifically for farm or agricultural settings. • Member of the CWD task team Communications Subcommittee.	• Provide supplementary information to support CFIA communications efforts. • Act as main contact for public and media inquiries – particularly those from the agricultural community. • Provide background information about CWD through CWD communications products.
Ontario Ministry of Health and Long Term Care (MOHLTC)	• Provide CWD information on the health and safety of humans when CWD incidents occur either on a farm or in the wild. • Member of the CWD task team Communications Subcommittee.	• Media relations staff will respond to questions of human health and safety when incidents of CWD occur.
Ontario Ministry of Natural Resources (MNR)	• Provide CWD fact sheets that include information about free-ranging deer and elk for hunters and other outdoor users. • Member of the CWD task team Communications Subcommittee, chair.	• Lead on communications if CWD is found in free-ranging deer or elk.

7.0 LITERATURE CITED

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APPENDICES

All appendices available separately, because of their large size, upon request.

Appendix Number	Description
I	CFIA Health of Animals Act requirements for Import of Live Cervids to Canada
II	Canadian Cervid Council Voluntary Herd Certification Program
III	Canada-Province of Ontario Foreign Animal Disease Emergency Response Plan, draft 2004/01/16
IV	Chronic Wasting Disease (CWD) Economic Study – Stratus Consultants, April 2004
V	Protocol for unauthorized release/escape of farmed white-tailed deer and elk and non-native deer species from deer or elk farms (WilPp 5.2.2)
VI	Manual of Procedures on Disease Control, Section 24.0, Chronic Wasting Disease, CFIA, July 10, 2002
VII	Surveillance Sample Methods, Requirements for Field Kits, and Disposal of Waste Surveillance Material
VIII	CFIA Wildlife Testing Protocol
IX	CWD Response Plan – Control and Eradication
X	Chronic Wasting Disease Awareness Communications Plan (Note - this Plan is being reviewed and will be updated – not available at this time)
XI	MNR CWD Response Communications Plan (Note - this Plan is being reviewed and will be updated – not available at this time)
XII	Glossary of Terms